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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/808,608	03/25/2004	Hirozumi Kon	107348-00406	5023

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EXAMINER	
NGUYEN, HANH N	

ART UNIT	PAPER NUMBER
2834	

DATE MAILED: 03/11/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/808,608	KON ET AL.	
	Examiner	Art Unit	
	Nguyen N. Hanh	2834	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *10 January 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-8* is/are pending in the application.

4a) Of the above claim(s) *7 and 8* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-6* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *25 March 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Remarks

1. In response to Election/Restriction requirements, Applicant's election without traverse of claims 1-6 has been acknowledged.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claim 1 is rejected under 35 U.S.C. 102(b) as being anticipated by Nemoto et al. (US Patent No. 6,422,546).

Regarding claim 1, Nemoto et al. (US Patent No. 6,422,546) disclose an electromagnetic actuator (29 in Fig. 1) comprising: a fixed core (the cylindrical portion surrounds shaft portion 38a) supported by a bottom wall of a housing (the bottom tubular portion of housing 30) made of magnetic material (inherent because the drawings show the housing having the same material with the core); a movable core (38 and 38a) arranged opposite to the fixed core via an air gap (β) to drive a movable member (20); and a coil assembly comprising a bobbin (33) supported by the housing to surround the fixed and movable cores (32 and 38a), and a coil wound around the bobbin, wherein the movable member and the movable core are coupled by coupling means (bolt 40 and spring 41) for adjusting the air gap between the fixed core and the movable core, and wherein an adjustment operating hole through which the coupling

means is adjusted is provided on the fixed core so as to be opened outside the bottom wall of the housing (Fig. 1).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nemoto et al. (US Patent No. 6,422,546) in view of Nemoto (US Patent No. 6,641,120)

Regarding claim 2, Nemoto et al. (US Patent No. 6,422,546) show the electromagnetic actuator wherein the fixed core is integrally formed with a positioning shaft in which the adjustment operating hole is opened on an outer end surface and with a flange-shaped first yoke which protrudes from the outer periphery of the fixed core to be arranged opposite to one end surface of the coil assembly; and a second yoke arranged opposite to the other end surf ace of the coil assembly is continuously provided to the housing. Nemoto et al. fail to show the positioning shaft is fitted and fixed into a positioning hole provided at the bottom wall of the housing; the first yoke is brought into close contact with an inner surface of the bottom wall to surround the movable core.

However, Nemoto (US Patent No. 6,641,120) discloses an actuator structure wherein the positioning shaft (the bottom portion of core 32 as shown in Fig. 1) is fitted and fixed into a positioning hole provided at the bottom wall of the housing; the first

yoke is brought into close contact with an inner surface of the bottom wall to surround the movable core for the purpose of improving vibration isolation function (Col. 1, lines 40-45).

Since Nemoto et al. (US Patent No. 6,422,546) and Nemoto (US Patent No. 6,641,120) are in the same field of endeavor, the purpose disclosed by Nemoto (US Patent No. 6,641,120) would have been recognized in the pertinent art of Nemoto et al. (US Patent No. 6,422,546)

It would have been obvious at the time the invention was made to a person having an ordinary skill in the art to modify Nemoto et al. (US Patent No. 6,422,546) by extending the buttom wall of the housing so that the positioning shaft is fitted and fixed into a positioning hole provided at the bottom wall of the housing; the first yoke is brought into close contact with an inner surface of the bottom wall to surround the movable core as taught by Nemoto (US Patent No. 6,641,120) for the purpose of improving vibration isolation function.

4. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nemoto et al. (US Patent No. 6,422,546) in view of Nemoto (US Patent No. 6,641,120) and further in view of Matsuoka (JP 2003-49894).

Regarding claim 3, Nemoto et al. (US Patent No. 6,422,546) and Nemoto (US Patent No. 6,641,120) show all limitations of the claimed invention except showing the electromagnetic actuator wherein the bobbin is continuously provided with a coil cover which covers the outer periphery of the coil to seal the coil to the bobbin; the housing is arranged so that its bottom wall faces downward; and between the first yoke and the

other end surfaces of the bobbin and the coil cover, there interposed an elastic plate which watertighly into close contact with their opposite surfaces.

However, Matsuoka discloses the electromagnetic actuator wherein the bobbin is continuously provided with a coil cover (the portion adjacent to side wall of the hosing as shown in Fig. 5) which covers the outer periphery of the coil to seal the coil to the bobbin; the housing is arranged so that its bottom wall faces downward; and between the first yoke and the other end surfaces of the bobbin and the coil cover, there interposed an elastic plate (the portion between the bobbin and the bottom of the stationary core) which watertighly into close contact with their opposite surfaces for the purpose of simplifying the structure of an actuator.

Since Nemoto et al. (US Patent No. 6,422,546), Nemoto (US Patent No. 6,641,120) and Matsuoka are in the same field of endeavor, the purpose disclosed by would Matsuoka have been recognized in the pertinent art of Nemoto et al. (US Patent No. 6,422,546) and Nemoto (US Patent No. 6,641,120).

It would have been obvious at the time the invention was made to a person having an ordinary skill in the art to modify Nemoto et al. (US Patent No. 6,422,546) and Nemoto (US Patent No. 6,641,120) by using a coil cover which covers the outer periphery of the coil to seal the coil to the bobbin an elastic plate between the first yoke and the other end surfaces of the bobbin and the coil cover as taught by Matsuoka for the purpose of simplifying the structure of an actuator.

5. Claims 4-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nemoto et al. (US Patent No. 6,422,546) in view of Nemoto (US Patent No. 6,631,895).

Regarding claim 4, Nemoto et al. (US Patent No. 6,422,546) show the electromagnetic actuator wherein the fixed core is integrally formed with a flange-shaped first yoke (the annular bottom portion of core 32) which protrudes from an outer periphery of the fixed core to be arranged opposite to one end surface of the coil assembly and which is supported on the bottom wall of the housing; a second yoke which surrounds the movable core (38a) and is arranged opposite to the other end surface of the coil assembly is fixed to the housing. Nemoto et al. (US Patent No. 6,422,546) fail to show a tube-shaped bearing member which slidably supports the movable core is slidably fitted in the second yoke; and a set spring is provided in a compressed state between the second yoke and an outward flange which is formed at a lower end of the bearing member and which is supported on the first yoke, thereby biasing the outward flange toward the first yoke.

However, Nemoto (US Patent No. 6,631,895) discloses an actuator structure wherein a tube-shaped bearing member (36) which slidably supports the movable core is slidably fitted in the second yoke; and an outward flange which is formed at a lower end of the bearing member and a set spring is provided in a compressed state between the second yoke and a flange which is formed at the movable core, thereby biasing the outward flange toward the first yoke for the for the purpose of avoiding the generation of heat in the actuator driver (Col. 1, lines 45-48).

Since Nemoto et al. (US Patent No. 6,422,546) and Nemoto (US Patent No. 6,631,895) are in the same field of endeavor, the purpose disclosed by Nemoto (US

Patent No. 6,631,895) would have been recognized in the pertinent art of Nemoto et al. (US Patent No. 6,422,546)

It would have been obvious at the time the invention was made to a person having an ordinary skill in the art to modify Nemoto et al. (US Patent No. 6,422,546) by using a tube-shaped bearing member which slidably supports the movable core is slidably fitted in the second yoke; and a set spring is provided in a compressed state between the second yoke and an outward flange which is formed at a lower end of the bearing member and which is supported on the first yoke, thereby biasing the outward flange toward the first yoke as taught by Nemoto (US Patent No. 6,631,895) for the purpose of avoiding the generation of heat in the actuator driver.

Regarding claim 5, Nemoto et al. (US Patent No. 6,422,546) show the electromagnetic actuator wherein a fixed core supported by a bottom wall of a housing made of magnetic material; a movable core (38) arranged opposite to the fixed core via an air gap (β) to drive the movable member (20); a coil assembly (34) comprising a bobbin supported by the housing to surround the fixed and movable cores, and a coil wound around the bobbin, a first yoke for holding the coil assembly in corporation with the bottom wall is continuously provided to the housing. Nemoto et al. (US Patent No. 6,422,546) fail to show a tube-shaped bearing member disposed inside the coil assembly to slidably support the movable core, wherein the bearing member is slidably fitted in the first yoke; wherein a supporting portion for supporting an outward flange formed at one end of the bearing member is provided on the bottom wall; and wherein a

set spring for biasing the outward flange toward the supporting portion is provided in a compressed state between the outward flange and the first yoke.

However, Nemoto (US Patent No. 6,631,895) discloses an actuator structure wherein a tube-shaped bearing member (36) which slidably supports the movable core is slidably fitted in the first yoke; and an outward flange which is formed at a lower end of the bearing member a set spring is provided in a compressed state between the second yoke and a flange which is formed at the movable core, thereby biasing the outward flange toward the first yoke (32) for the for the purpose of reducing power consumption (Col. 1, line 49).

Since Nemoto et al. (US Patent No. 6,422,546) and Nemoto (US Patent No. 6,631,895) are in the same field of endeavor, the purpose disclosed by Nemoto (US Patent No. 6,631,895) would have been recognized in the pertinent art of Nemoto et al. (US Patent No. 6,422,546).

It would have been obvious at the time the invention was made to a person having an ordinary skill in the art to modify Nemoto et al. (US Patent No. 6,422,546) by using a tube-shaped bearing member which slidably supports the movable core is slidably fitted in the first yoke; wherein a supporting portion for supporting an outward flange formed at one end of the bearing member is provided on the bottom wall; and wherein a set spring for biasing the outward flange toward the supporting portion is provided in a compressed state between the outward flange and the first yoke as taught by Nemoto (US Patent No. 6,631,895) for the purpose of reducing power consumption.

Regarding claim 6, Nemoto (US Patent No. 6,631,895) also show the electromagnetic actuator wherein the fixed core is integrally formed with a positioning shaft (the tubular portion below annular face 32 in Fig. 1) fitted and fixed in a positioning hole provided on the bottom wall and with a second yoke (38) which comes into close contact with an inner surface of the bottom wall and opposes to the first yoke with the coil assembly (34) sandwiched therebetween, and the second yoke constitutes the supporting portion.

Conclusion

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hanh N Nguyen whose telephone number is (571) 272-2031. The examiner can normally be reached on Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner 's supervisor, Darren Schuberg, can be reached on (571) 272-2044. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9306 for regular communications and (703) 872-9306 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-1782.

HNN

February 28, 2005

DARREN SCHUBERG
SUPERVISORY PATENT EXAMINER
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